

CLAIMS

1. An apparatus for interfacing a communication network
5 to an external element comprising:
an interface device coupled to the communication
network and the external element, the interface device
comprising a processor adapted to operate responsive to a
control program stored within a memory associated with the
10 processor; and wherein the interface device is operable to
recognize the external element, to negotiate a security
level between the external element and the communication
network, and to manage access by the external element to
the communication network.
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2. The apparatus of claim 1, wherein the security level
defines a level of access of the external element to the
communication network.
- 20 3. The apparatus of claim 1, wherein, based upon the
security level, the interface device restricts access by
the external element to at least one class of data retained
within the communication network.
- 25 4. The apparatus of claim 1, wherein, based upon the
security level, the interface device restricts access by
the external element to at least one internal function of
the communication network.

5. The apparatus of claim 1, wherein based upon the security level, the interface device terminates access by the external element.
- 5 6. The apparatus of claim 1, wherein the interface device provides scalable levels of access to the communication network by the external element.
- 10 7.. The apparatus of claim 1, wherein the interface device includes restriction criteria associated with varying degrees of authorization to the communication network by the external element.
- 15 8. The apparatus of claim 7, wherein the restriction criteria comprises one of user based privileges and network operation variables.
- 20 9. The apparatus of claim 1, wherein the interface device is operable to provide one of access control, connectionless integrity, data origin authentication, replay packet rejection and confidentiality services.
10. The apparatus of claim 1, wherein the interface device includes a tunnel communication mode.
- 25 11. The apparatus of claim 10, wherein the tunnel communication mode comprises of an IP security protocol tunnel mode.
- 30 12. The apparatus of claim 1, wherein the interface device is configured to recognize a particular external element.

13. The apparatus of claim 1, wherein the interface device comprises an embedded security layer.

14. The apparatus of claim 1, wherein the interface device
5 establishes a security layer between the communication network and the external element.

15. The apparatus of claim 1, wherein the interface device is operable to establish one of a static association and a
10 dynamic association between the external element and the communication network.

16. The apparatus of claim 1, wherein the interface device is operable to establish both a static association and a
15 dynamic association between the external element and the communication network at the same time.

17. The apparatus of claim 1, wherein the interface device is operable to provide an action responsive to the security
20 level.

18. The apparatus of claim 17, wherein the action comprises one of creating a usage accounting record and providing a message.
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19. The apparatus of claim 1, wherein the interface device is operable to expand access to the communication network by the external element.

30 20. The apparatus of claim 19, wherein the interface device expands access to the communication network by the

external element subsequent to a renegotiation of the security level.

21. The apparatus of claim 1, wherein the interface device
5 comprises a translation function.

22. A method of interfacing a communication network to an external element comprising the steps of:

10 providing an interface coupled between the communication network and the external element,
recognizing the external element via the interface,
negotiating a security level between the external element and the communication network, and
metering access via the interface by the external
15 element to the communication network in view of the security level.

23. The method of claim 22, wherein the security level defines a level of access of the external element to the
20 communication network.

24. The method of claim 22, wherein the method comprises, based upon the security level, restricting access by the external element to at least one class of data retained
25 within the communication network.

25. The method of claim 22, wherein the method comprises, based upon the security level, restricting access by the external element to at least one internal function of the
30 communication network.

26. The method of claim 22, wherein the method comprises, based upon the security level, terminating access to the communication network by the external element.

5 27. The method of claim 22, further comprising scaling levels of access to the communication network by the external element.

10 28. The method of claim 22, wherein the interface device includes restriction criteria, and wherein the method comprises varying degrees of authorization to the communication network by the external element in view of the restriction criteria.

15 29. The method of claim 28, wherein the restriction criteria comprises one of user based privileges and network operation variables.

20 30. The method of claim 22, the method comprising tunneling data between the external element and the communication network through the interface device.

25 31. The method of claim 22, wherein the step of recognizing an external element comprises recognizing a particular external element.

32. The method of claim 22, comprising establishing a security layer between the communication network and the external element.

33. The method of claim 22, comprising establishing one of a static association and a dynamic association between the external element and the communication network.

5 34. The method of claim 22, comprising, in response to a failure to negotiate a security level, providing an action responsive to the failure to negotiate a security level.

10 35. The method of claim 34, wherein the action comprises one of creating a usage accounting record, providing a recorded message and linking to a source of additional information.

15 36. The method of claim 22, comprising expanding access to the communication network by the external element.

20 37. The method of claim 22, wherein the step of expanding access to the communication network by the external element comprises renegotiating the security level.

38. The method of claim of claim 22, further comprising the step of translating data communicated between the external element and the communication network.